3.D 2. ACP Supplements. When a classification society applies to the Alternate Compliance Program a comparison is made between the classification society rules and the applicable sections of the CFR. Federal Register pages 7495 through 7499 of Volume 63, 13 February 1998, outlines the Critical Ship Safety Systems regulations that are reviewed in order to draft the supplement. When a classification society rules are used correctly in conjunction with the applicable supplement an equivalent level of safety as that provided by use of the CFR and SOLAS is provided.

Online: Supplements are available online and can be found by going to the Coast Guard homepage: http://www.uscg.mil. Once there, select "Marine Safety", then the "Marine Safety Index". Scroll down and select "G-MSE Office of Design & Engineering Standards". Under the Naval Architecture Division heading, select the "Alternate Compliance Program".

E. Mechanical Systems.

1. Engineering Materials.

a. Program Philosophy.

(1) Introduction. One phrase used throughout the vessel inspection regulations is "the component must be suitable for the intended service." A component's suitability depends upon a number of factors, one being the material from which it is made. In the design of a component, one of the most important considerations is the selection of material. This depends upon the physical shape and size of the component, its operating environment, useful life, and method of fabrication. The designer must match these design constraints to the mechanical and physical properties of the material and its behavior in the operating environment. These material properties are influenced by the chemical composition, the melting process, the method of forming, the method of fabrication, and any subsequent heat treatments. The infinite combination of these factors can make the material selection process very difficult. Fortunately, there are several standard organizations, such as the American Society for Testing and Materials (ASTM), ASME, and ANSI, that help make this selection process easier. The standards produced by these organizations place various constraints on the above factors, thereby ensuring consistent properties within a range for a given material over a period of time and among various producers. This consistency allows predictions to be made about the behavior of the material in various environments, so as to be able to place limitations on its use. For this reason, the Coast Guard usually accepts only materials that comply with one of these recognized standards. Not all standards are accepted. The consistency of the material's properties depends on the type of constraints used and how tightly these constraints are placed on the factors mentioned above. Another consideration is the amount of quality control required to ensure that the requirements have been met. Only standards that place adequate constraints and controls on the factors influencing the material's properties are accepted.

(2) General Acceptance Procedures. In general, the material specifications accepted specify the melting process, chemical